

REMARKS

This Amendment is submitted in response to the Office Action mailed on October 25, 2005. Claims 1 - 24 and 31 are pending, and all stand rejected at present.

Claims 25 - 30 and 32 - 37 are withdrawn from consideration at present.

Claims 22 - 24 have been cancelled. In view of the cancellation of claim 22, the basis for the rejection under 35 USC § 112 is believed to be overturned.

RESPONSE TO REJECTION OF CLAIMS 9 – 11

Claims 9 - 11 were rejected under 35 USC §103(a) as being unpatentable over Kanazawa (U.S. Patent 5,431,141) in view of Vollmer (U.S. 6,879,079). Claim 9 depends from claim 1, and both are set forth here.

1. (Currently amended) A stator for an electric motor, comprising:
 - a) a radial array of 2N substantially identical teeth, definable as 1, 2, 3, to 2N;
 - b) N coils, one wound around each even tooth; and
 - c) no coil wound around any odd tooth.
9. (Currently amended) The apparatus according to claim 1, and further comprising a motor vehicle which powers the motor.

As understood, Vollmer is cited to show claim 1, and Kanazawa is cited to show claim 9. Per the reasons discussed before and in view of the claims now presented,

Applicant believes these claims are NOT obvious in view of the references when viewed above or in combination.

Point 1

As explained below in connection with the anticipation rejection of claim 1, Vollmer does not show the claim recitation that all teeth are substantially identical. Tooth 7 in his Fig. 1 is different from tooth 8.

Thus, even if it were obvious to combine references, the references, this recitation of claim 1 is not attained.

Point 2

Moreover, Vollmer clearly is discussing a three-phase synchronous AC machine. Such a machine requires a power supply which provides three sinusoidal voltage waves, 120 degrees apart, one for each phase.

No such power supply has been shown in Kanazawa. Therefore, no expectation of success has been shown in the references, when combined. Stated more simply: Vollmer's motor will not work in Kanazawa's vehicle.

MPEP Section 706.02(j) states:

Contents of a 35 U.S.C. 103 Rejection

. . .

To establish a prima facie case of obviousness, three basic criteria must be met.

. . .

Second, there must be a reasonable expectation of success.

. . .

The . . . reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

Point 3

Vollmer's motor is of the three-phase type.

Kanazawa uses a motor 105 and a controller 155 in his Figure 1 to rotate a throttle plate to a predetermined position. (Column 8, lines 16, 17.)

There is no expectation of success in attaining this rotation, in replacing Kanazawa's DC motor 105 by a three-phase motor. Applicant respectfully submits that there is no type of controller used in Vollmer's three-phase motor of the type claimed by Applicant. Also, Applicant can find no such controller shown in the prior art.

Point 4

No valid teaching has been given for combining the references, for several reasons that will now be described.

Reason 1

One reason is that one rationale given for combining the references is that Vollmer's approach provides a reduction in cost. (Office Action, page 5, end of third paragraph.)

However, the Office Action cites Vollmer, column 2, lines 1 - 15 in support of this cost reduction. Vollmer, at that location, is comparing his invention with the prior art,

and states that, since he does not wind every tooth, he saves cost through the reduction in the number of windings present.

But if a reduction in cost is to motivate the combination of references, then the **combination of references** must show a reduction in cost. That is, a reduction cost must be shown in going from Kanazawa, unmodified, to Kanazawa-plus-Vollmer.

Applicant respectfully submits that there has been no showing the replacement of Kanazawa's motor 105 in his Figure 1 by Vollmer's motor provides any reduction in cost. Indeed, such replacement may actually increase design, manufacturing and part costs. For example, Kanazawa's motor is a DC motor. (Column 7, line 28.) It requires no power supply, other than the battery of the vehicle. If it is replaced by Vollmer's motor, then a three-phase power supply (not shown in the references) must be provided.

For the foregoing reasons, Applicant respectfully submits that there is no showing that Vollmer's motor, plus a three-phase power supply, is cheaper than Kanazawa's motor. That has not been done. Thus, Applicant respectfully submits that the rationale of reduction-in-cost should be withdrawn.

Reason 2

As a rationale for combining the references, the Office Action states:

[The combination of references] produces a magnetic field profile
from which the harmonics have virtually been filtered out
which leads to a reduction in cost.

(Office Action, page 5, end of third paragraph.)

However, this is a near-verbatim quote of Vollmer's column 2, lines 2 - 4. That passage sets forth a supposed characteristic of Vollmer's invention.

It should be self-evident that Vollmer's characterization of his invention does not act as a teaching to combine another reference.

Reason 3

Another rationale for the combination is to achieve a reduction in both harmonics and cost. However, Vollmer, by itself, attains that reduction and appears to say so. There is no reason to combining Vollmer with Kanazawa to attain the reduction.

Thus, the rationale does not, as a matter of logic, lead to the combination of references.

Reason 4

Independent of the foregoing, the Examiner's basis for the combination merely sets forth a supposed characteristic of the references, but **after** combining them, which is believed to be insufficient as a teaching for making the combination in the first place.

Such a combination is to improve because all combinations of references, used to show the inventions, will possess one or more characteristics. If the mere presence of a characteristic in the combination acts as a teaching for combining the references, then a teaching will be present in every combination of references, so every invention would be obvious.

The mere presence of a characteristic in the combination of references is insufficient to provide a teaching for combining the references.

Reason 5

MPEP Section 706.02(j) states:

Contents of a 35 U.S.C. 103 Rejection

. . . After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

. . .

- (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
- (D) **an explanation** why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

To establish a prima facie case of obviousness, three basic criteria must be met.

First, **there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.**

Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

Applicant respectfully submits that Office Action's reliance on Vollmer's statement of his column 2, lines 2 - 4, as a teaching for combining the references does not comply with this MPEP section. Vollmer's statement does not state why the references should be combined, as required by this MPEP section.

Reason 6

Vollmer states that his invention reduces certain harmonics that are present in a certain type of three-phase electric motor. No such motor, having such a problem, has been shown in Kanazawa. Therefore, Vollmer solves a problem which is not present in Kanazawa.

There is no reason to replace or combine Kanazawa's motor 105 with Vollmer's motor.

Conclusion

Applicant respectfully submits that the obviousness rejection of claim 9 cannot stand.

Claims 10 and 11 are dependent claims and depend directly from claim 9. Accordingly, it is believed that the discussion above applies to claims 10 and 11.

RESPONSE TO REJECTION OF CLAIMS 12 - 17 AND 19 – 21

On page 5 of the Office Action, claims 12-17 and 19-21 were rejected under 35 USC §103(a) as being unpatentable over Vollmer (US 6,879,079) in view of Greer (US 2,571,105).

Claim 12

Claim 12 recites, in part:

c) breaks in the stator, which allow

- i) any selected individual stator ~~teeth~~ tooth to be removed from the stator; and
- ii) a pre-formed coil to be mounted onto the selected stator ~~teeth~~ tooth.

Figures 22 and 23 of Applicant's Specification provide an example of the claim recitations.

Point 1

The references are contradictory to these claim recitations. Vollmer's teeth 8 are not removable. Greer does not state whether either of his teeth types 2 or 3 are removable. Therefore, even if the references are combined, these claim recitations are not found.

MPEP Section 2143.03 states:

To establish prima facie obviousness . . . **all the claim limitations** must be taught or suggested by the prior art.

Point 2

No valid teaching for combining the references has been given for several reasons.

REASON 1

As a rationale for combining the references, the Office Action cites a benefit (better heat radiation) which Greer finds in his invention. However, that benefit is not in the pre-formed coils, but in the facts that

- (1) air spaces are supposedly reduced and
- (2) better thermal contact is supposedly attained. (Greer, column 2, top.)

However, no showing has been made that, when a preformed coil is installed in Vollmer, these two factors are present. Therefore, no showing has been made that better heat radiation is obtained when Greer's coil is installed in Vollmer.

If the goal is better heat radiation, and that is the rationale for combining the references, then the PTO has not shown how the combination of references achieves the goal.

REASON 2

The goal of better heat radiation is obtained by Greer alone. There is no reason to combine Greer with Vollmer to attain the goal of better heat radiation.

Thus, the proposal of a goal of better heat radiation is not a motivation for combining Greer with Vollmer to attain that goal. Greer, alone, attains it (supposedly).

REASON 3

The rationale merely sets forth a supposed characteristic of the references, but after combining them. As explained above, the presence of a characteristic in a

combination of references does not act as a teaching for combining them in the first place.

REASON 4

No reason has been given why Vollmer wants the improved heat dissipation of Greer. Therefore, there is no reason to add this feature to Vollmer.

Claim 13

The reasons set forth above relate to claim 12 applies to claim 13 as well.

In addition, the Office Action, page 6, end of first full paragraph, asserts that a reason for combining the references is that the pre-formed coils of Greer can be added to Vollmer "since it would require no modification of the stator of Vollmer to do so."

Applicant respectfully submits that the mere addition of Greer's coils to Vollmer would be a modification of Vollmer because Vollmer's coils are thereby removed.

Claim 14 and 15

Claims 14 and 15 are dependent claims and depend directly from claim 13 and are considered patentable. Accordingly, it is believed these claims are allowable for the same reasons set forth above.

Claims 16, 17, and 19

The discussion of claim 12, regarding lack of a teaching for combining the references, applies to claims 16 and 17.

Claim 20

Claim 20 recites, in part:

- b) breaks in the rim, teeth, or both, which allow
- i) any selected individual teeth to be separated from the stator.

Applicant's Figures 22 and 23 provide examples of subject matter supporting this claim.

Applicant respectfully submits that both references are contrary to this recitation, as explained in connection with claim 12. Thus, even if the references are combined as suggested, this claim recitation is not attained.

Also, essentially the same rationale used to combine the references in rejecting claim 12 is now applied in rejecting claim 20. The discussion given in connection with claim 12 regarding that rationale applies here.

Claim 21

Claim 21 is considered patentable, based on its parent claim.

RESPONSE TO REJECTION OF CLAIM 18

On page 8 of the Office Action, the Examiner rejected claim 18 under 35 USC §103(a) as being unpatentable over Schunk et al. (U.S. 6,812,612) in view of Greer (U.S. 3,517,105).

Point 1

Claim 18 states that the "segments" of parent claim 16 "collectively form a circular periphery of the stator."

Neither Schunk nor Greer show any such "segments." Applicant points out that, in Schunk's Figure 1, the stator 1 is a unitary structure, from which teeth 3 and 5 extend. But no "segments" are present.

Thus, even if the references are combined, this recitation is not found.

Point 2

The rationale given for combining the references is that better heat dissipation is obtained.

This is the same rationale used to reject claim 12, and the discussion given in connection with claim 12 applies here.

Point 3

Schunk expressly states that "windings are wound" onto his teeth. (Column 3, line 5.), which is directly contrary to the concept of using Greer's pre-formed teeth.

Contrary references cannot be combined.

RESPONSE TO REJECTIONS OF CLAIMS 1, 2, 4 - 8, 22 - 24, and 31 under USC § 102(e)

These claims were rejected on grounds of anticipation based upon Vollmer (U.S. Patent 6,879,079).

Claims 1, 2, and 31

Applicant respectfully submits that claim 1 has been amended to state that all teeth are substantially identical. Vollmer does not show that (his teeth 7 and 8 are different), and expressly states that identical teeth are not desired. As to the latter, Vollmer states that the teeth have different "pitch widths." (Column 1, lines 61, 62.) He also gives a formula for computing the teeth pitch widths. (Column 2, line 27 et seq.)

Therefore, Applicant submits that Vollmer does not show teeth of the limitations of class 1 or 2.

Claim 31 is a dependent claim and depends from claim 1. For the reasons stated above related to claim 1 considered patentable based on its parent.

Claims 4 - 8

Claim 4 recites:

4. A stator for an electric motor, comprising:

- a) a radial array of stator teeth, separated by stator slots;
and
- b) phase coils encircling at least some stator teeth, wherein no slot contains coils from more than one phase, and any slot containing a coil is fully occupied by said coil.

Applicant's Figure 15 provides an example of subject matter supporting this claim. Also, paragraphs 46 and 51 discuss full slots.

Applicant points out that the claimed full occupancy of slots is not shown in Vollmer.

This applies to claims 6 and 7.

Claims 5 and 8 are considered patentable, based on their parent claims.

Claims 22 – 24

These claims have been cancelled.

RESPONSE TO REJECTIONS OF CLAIM 3 under USC § 102(b)

Claim 3 was rejected under 35 USC §102(b) as being anticipated by Caywood (U.S. Patent 3,514,650). Claim 3 is considered patentable based on its parent.

Conclusion

For all the foregoing reasons and in view of the amended claims as now presented, Applicant believes all claims as now pending are not anticipated by the references cited by the Examiner, and accordingly, they should be allowed.

Applicants are filing concurrently herewith a request for a three-month extension of time.

The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1287. Applicants hereby provide a general request for any extension of time which may be required at any time during the prosecution of the application. The Commissioner is also authorized to charge any fees which have not been previously paid for by check and which are required during the

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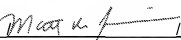
prosecution of this application to Deposit Account No. 50-1287. (Should Deposit Account No. 50-1287 be deficient, please charge any further deficiencies to Deposit Account No. 10-0220).

Applicant invites the Examiner to contact the undersigned via telephone with any questions or comments regarding this case.

Reconsideration and favorable action are respectfully requested.

Respectfully submitted,

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